

*A New ERAA: Integrating Hydrogen, Ammonia and Methanol
into Energy Resource Regulation in British Columbia*

Proposed Regulatory Policies for Pipelines and Manufacturing Facilities

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Note: All images are for decorative purposes only and may not be technically accurate.



Introduction

Background

In 2022, the Energy Statutes Amendment Act granted the British Columbia Energy Regulator (BCER) oversight over the manufacturing, associated on-site storage and pipeline transportation of hydrogen, ammonia and methanol in the province.

Objective

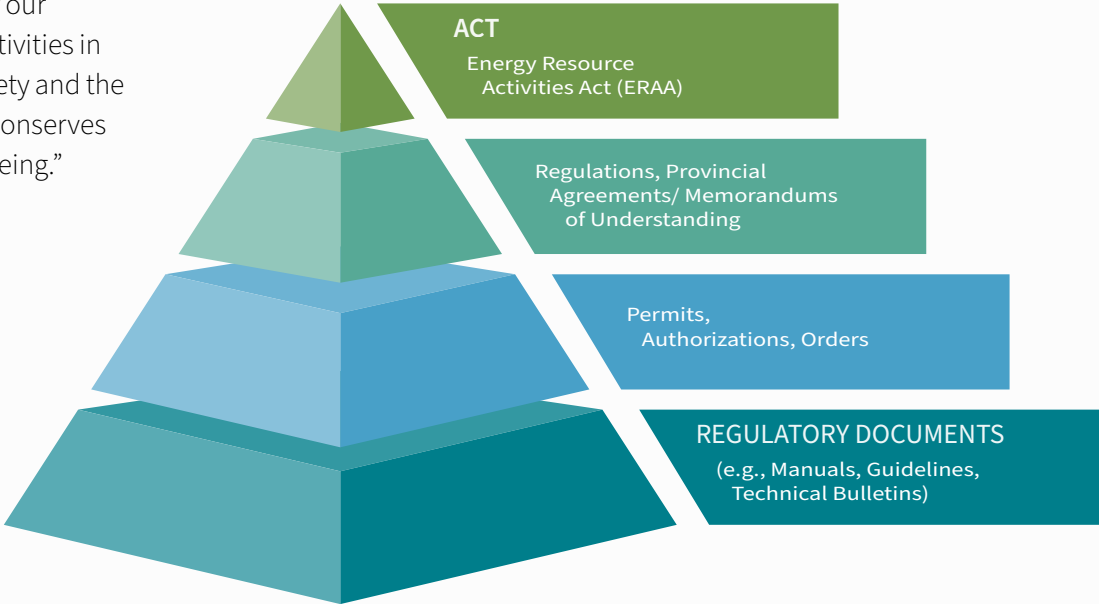
As a result of our expanded mandate, we are undertaking the process of comprehensively reviewing and updating our regulatory framework to encompass these new activities. This undertaking is guided by our mandate and mission statement of “ensuring energy resource activities in the province are undertaken in a manner that protects public safety and the environment, supports reconciliation with Indigenous peoples, conserves energy resources and fosters a sound economy and social well-being.”

Process

The process comprises four primary steps: (1) reviewing the existing regulations for potential changes, (2) policy development of proposed regulatory changes, (3) deciding whether to move forward on regulatory change and drafting of regulations and (4) implementing the regulations. Extensive engagement will be undertaken throughout the process.

Scope

The review will consider all applicable regulations under the Energy Resource Activities Act (ERAA) - and may also result in changes to associated regulatory materials, such as manuals and guidance documents. This review will not be considering those aspects of these energy resources’ value chains that fall outside the regulatory purview of the BCER, such as distribution, end-use, transportation of dangerous goods as well as a variety of economic programs and enabling processes to support low-carbon transition.



Engagement

We began our engagement in the fall of 2023, soliciting and [summarizing](#) feedback to a [discussion paper](#) that highlighted key considerations for integrating these energy resource activities into the BCER’s regulatory framework.

The present document first outlines the BCER’s current regulatory framework for energy resource activities. It then presents the proposed regulatory policies for (1) pipelines and (2) manufacturing facilities for hydrogen, ammonia and methanol.

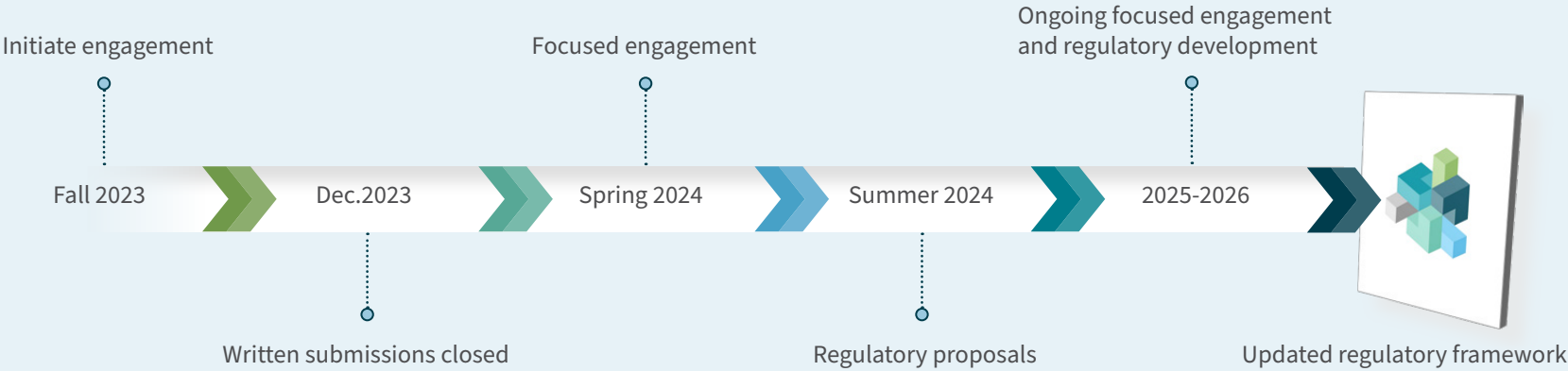
Feedback

You are invited to provide feedback, including any relevant context or rationale, on any of the proposed regulatory policies considered in this document. Please note engagement will continue as we progress to approval and drafting of the amended regulation. Any feedback received will help inform the final regulatory policy and may inform guidance documents and manuals.

Your feedback is requested by **June 30, 2024**.

Questions, comments and written submissions can be directed to regulatoryaffairs@bc-er.ca.

Working Timeline



The BCER's Regulatory Framework



Companies seeking approval for an energy resource activity in B.C. must apply for a permit and engage and consult with First Nations, land owners and communities. The BCER's regulatory framework is comprised of legislation, regulations and other policy mechanisms such as permits, authorizations and guidance documents. Together, these mechanisms are used to govern the regulation of energy resource activities within the province.

- **The Energy Resource Activities Act (ERAA)** defines which facilities, including manufacturing facilities, are under the jurisdiction of the BCER and establishes overarching requirements to ensure regulatory oversight. The Oil and Gas Processing Facility Regulation (OGPFR; B.C. Reg. 48/2021) regulates the full life cycle of a processing facility including the design, construction, operation, maintenance, suspension or decommissioning of facility infrastructure. The OGPFR provides a model for the types of regulatory considerations that may be needed for a manufacturing facility.
- ERAA defines which pipelines are under the jurisdiction of the BCER and establishes overarching requirements to ensure regulatory oversight. The Pipeline Regulation establishes technical requirements for the design, construction, operations, maintenance and abandonment of pipeline infrastructure.
- To effectively function as a single-window regulator for the full life cycle of energy resource activities in B.C., ERAA also provides specific authorities under “specified enactments” that allow the BCER to issue authorizations under specified provisions of the following Acts:

- **Forest Act,**
- **Heritage Conservation Act,**
- **Land Act,**
- **Environmental Management Act,** and
- **Water Sustainability Act.**

Other BCER regulations that may apply include:

- **Requirements for Consultation and Notification Regulation:** Outlines requirements for consultation and engagement with land owners and rights holders on permit applications and amendments.
- **Dormancy and Shutdown Regulation:** Outlines requirements for companies to undertake for wells, facilities and pipelines that have not been active for a defined period.
- **Fee, Levy and Security Regulation:** Gives the BCER the ability to charge fees for services and levies to enable cost recovery for its ongoing operations.
- **Emergency Management Regulation:** Allows the BCER to take an “all-hazards” approach to regulating activities, including requirements for emergency planning, training exercises and site-specific emergency response plans.
- **Security Management Regulation:** Requires permit holders to comply with CSA Standard Z246.1 (a national standard) and develop a Security Management Program to identify threats and risks on a continuing basis and implement appropriate mitigation and response measures.

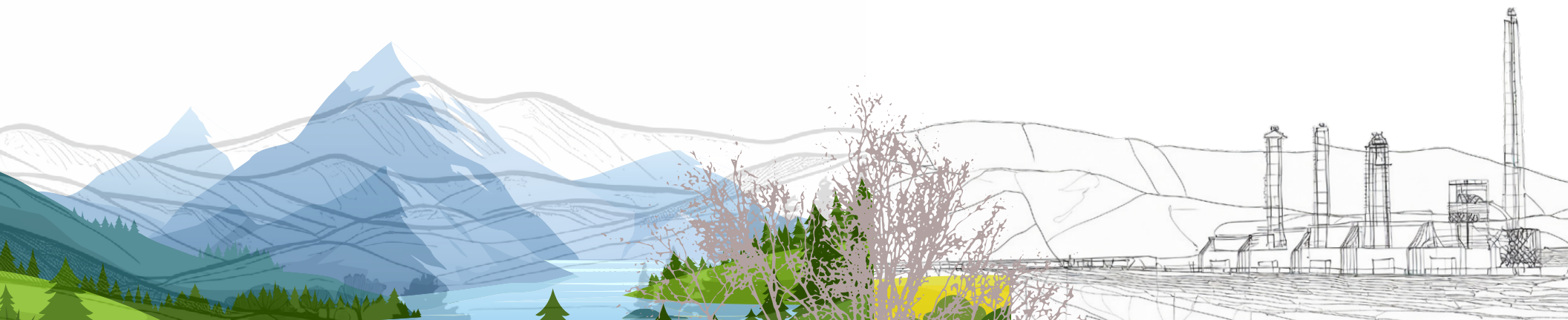
Other Government regulations that may apply include:

- **Pipeline Crossings Regulation:** Specifies distances for working near and for crossing a pipeline.
- **Spill Reporting Regulation:** Sets out reporting requirements for spills.
- **Environmental Protection and Management Regulation:** Sets out government's environmental objectives for energy resource activities to enable environmental protection during the life cycle of an energy resource activity.
- **Energy Resource Activities General Regulation:** Regulates permit expiration, special projects, release of information, surveys, taxation, etc.
- **Administrative Penalty Regulation:** Establishes penalties for non-compliance with regulations.
- **Oil and Gas Waste Regulation:** Regulates oil and gas waste permits, such as air emissions.
- **Contaminated Sites Regulation:** Regulates the assessment and remediation of contaminated sites.

Some activities may require additional approvals from other regulators or create obligations under other statutes.

- **Local Government Act** – Requirements for building safety are described in the British Columbia Building Code. Manufacturing facility structures may be expected to comply with the design and construction standards in the Building Code, as applicable.
- **Safety Standards Act** – Some aspects of the construction and operation of a manufacturing facility will need to be permitted under the Safety Standards Act, which is administered by Technical Safety BC.
- **Occupational Health and Safety Regulation** – While the proposed regulatory policies include several public and worker safety standards, worker safety is also subject to the Occupational Health and Safety Regulation, which is administered by WorkSafe BC.
- Depending on the size of a project and whether it is reviewable under the **Canadian Environmental Assessment Act, 2012** or the **B.C. Environmental Assessment Act**, a federal or provincial environmental assessment may be required.
- Other potentially applicable acts include the **Transportation Act, Industrial Roads Act, Highway Act, Workers Compensation Act** and **Wildlife Act** as well as the **Federal Fisheries Act**.

BCER application and operations manuals and guides focus on requirements and processes associated with the Regulator's legislative authorities.



1. Pipelines

Introduction

The Energy Statutes Amendment Act, 2022 (Bill 37) updated the Energy Resource Activities Act (ERAA) to grant the BC Energy Regulator (BCER) oversight of pipelines transporting hydrogen, ammonia and methanol, except for pipelines operating under 700 kPa that transport natural gas to consumers, which are regulated under the Gas Utility Act. The changes also brought pipelines carrying carbon dioxide from non-oil and gas activities under the BCER's jurisdiction. Pipelines that cross provincial or international borders are primarily regulated by the Canada Energy Regulator (CER). However, proponents of CER-regulated projects still apply to the BCER for pipeline rights-of-way, roads and other works in and around these pipelines within B.C.

This section provides (1) background information on the Pipeline Regulation, which is the primary regulation for pipelines under the ERAA framework and (2) the proposed regulatory policies to amend the Pipeline Regulation to account for the transport of these additional energy resources. These regulatory policies may also inform revisions to BCER guidance documents and manuals.

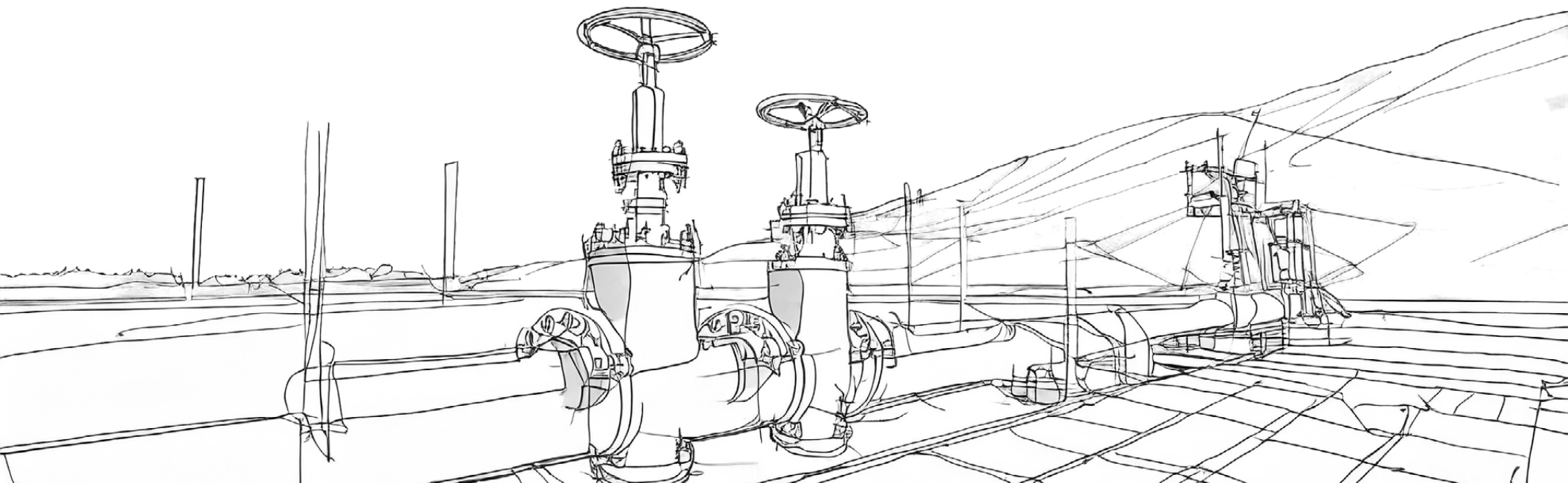


The Pipeline Regulation

The objective of the Pipeline Regulation ([B.C. Reg. 281/2010](#)) is to regulate the full life cycle of a pipeline including the design, construction, operation, maintenance, deactivation, reactivation or abandonment of pipeline infrastructure.

Key requirements under the Pipeline Regulation include:

- Compliance with CSA Z662: Oil and gas pipeline systems. The standard was developed by technical experts and has been adopted at the national level by the Canada Energy Regulator (CER) in relation to federally regulated pipelines. The Pipeline Regulation adopts the latest version of this standard by reference. The standard's most recent update in 2023 includes a new clause on hydrogen and hydrogen blending in pipeline systems. The standard can be downloaded for free from the [CSA Group website](#). This free online access is an initiative of the BCER's work with the Western Regulators Forum.
- Provisions that strengthen safety and environmental requirements, such as:
 - ▶ Requiring compliance with CSA Z662 Annex A so that a safety and loss management system is required for the entire life cycle of the pipeline.
 - ▶ Requiring compliance with CSA Z662 Annex N so that a pipeline system integrity management program is required for the entire life cycle of the pipeline.
 - ▶ Ensuring the right-of-way is kept clear of garbage, debris and derelict equipment after construction.
 - ▶ Requiring permit holders to have a damage prevention program in place to anticipate and prevent damage to the pipeline prior to operation.
 - ▶ Ensuring timelines for notifications and submissions allow for adequate regulatory oversight over the life cycle of the pipeline.



Proposed Regulatory Policies for the Pipeline Regulation

Proposal:

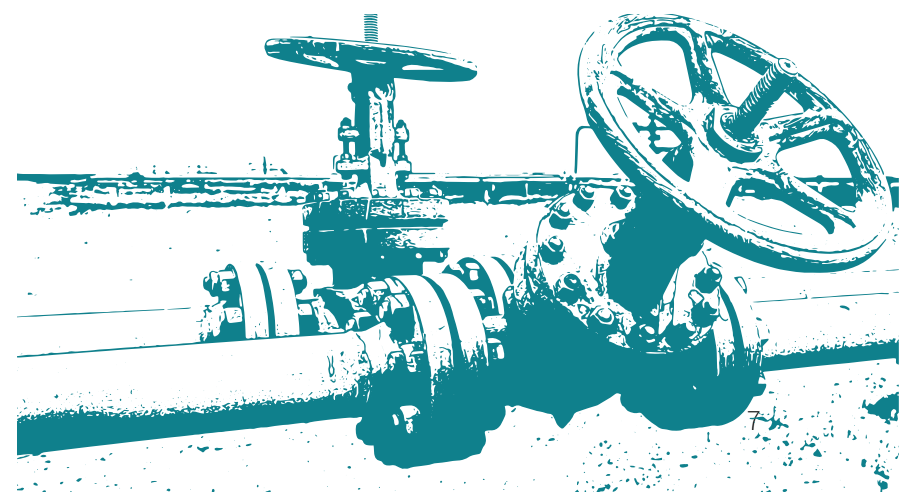
Extend the scope and applicability of the Pipeline Regulation to include the design, construction, operation, maintenance, deactivation, reactivation or abandonment of pipelines that transport hydrogen, ammonia and methanol as well as carbon dioxide from non-oil and gas activities.

- Apply CSA Z662 and Annex A and N within the scope of substances to which CSA Z662 applies (currently hydrogen and carbon dioxide from oil and gas sources). In addition, these changes will also apply to carbon dioxide from non-oil and gas sources where it is demonstrated to be appropriate.
- Allow the identification by applicants of alternate codes and standards to be used in the design, construction, operation, maintenance, deactivation, reactivation or abandonment of a pipeline where CSA Z662 is not applicable and appropriate (currently ammonia and methanol).
 - Alternate codes or standards must include supporting documentation by Qualified Professionals confirming appropriateness.
 - Alternate codes or standards must provide for an equivalent or enhanced level of safety and protection.

Proposal:

Blending of hydrogen into existing natural gas pipelines in accordance with CSA Z662.

- The scope of hydrogen blending addressed in this policy is specific to pipelines regulated by the BCER. The scope therefore excludes pipelines regulated by Technical Safety BC or the CER.
- The latest version of CSA Z662 includes changes and additions to the standard, including a new clause on hydrogen blend pipeline systems.
- Permits will limit hydrogen content to the maximum demonstrated by the supporting documentation with a pipeline application.
- To demonstrate the pipeline and associated equipment are suitable for the proposed blended hydrogen service, engineering assessments will be required as per CSA Z662, and must be signed off by a Qualified Professional.



2. Manufacturing Facilities

Introduction

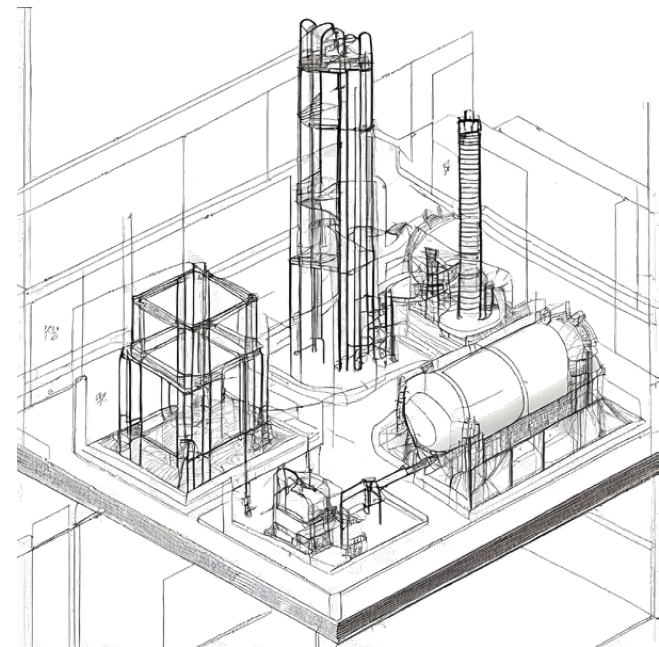
This section presents proposed regulatory policies and considerations for the life cycle (design, construction, start-up, operation, suspension and decommissioning) of a manufacturing facility for hydrogen, ammonia or methanol (manufacturing facility) under the legislative authorities of the BC Energy Regulator (BCER) as set out in the Energy Resource Activities Act (ERAA). The Oil and Gas Processing Facilities Regulation (OGPFR) is used as an example of an existing regulation for facilities. The proposed regulatory policies outline provisions that will be used to inform the regulatory approach and design of a manufacturing facility regulation.



Proposed Regulatory Policies for Manufacturing Facilities

When developed, the proposed regulatory policies for a manufacturing regulation will exist within a regulatory framework of federal and provincial laws, policies, procedures, codes, standards and best practices for proponents who wish to construct and operate a manufacturing facility in B.C. The proposed regulatory policies are limited in scope to reflect the BCER's legislative authorities under ERAA regarding the design, construction, operation, suspension and decommissioning of a manufacturing facility. Proposed regulatory policies do not address issue areas outside of the BCER's regulatory responsibilities.

- **Section A** discusses specific engineering and technical requirements as well as other general provisions.
- **Section B** highlights issues that may be unique to a facility for manufacturing hydrogen through the electrolysis of water.
- **Section C** discusses environmental stewardship and supporting social well-being and reconciliation.



A. Engineering and Technical Requirements

This section explores proposed regulatory policies for specific engineering/technical requirements related to:

i. Application requirements.

ii. Engineering design and siting:

- ▶ Safety hazards and risks,
- ▶ Flaring, venting and fugitives, and
- ▶ Minimize wastes.

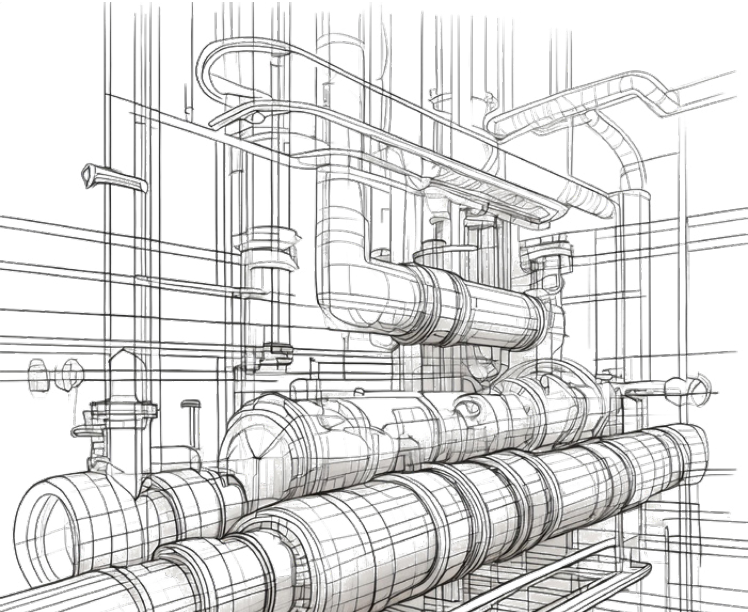
iii. Codes and standards.

iv. Construction, pre-operation testing and commissioning, operations and facility end-of-life.

v. General provisions:

- ▶ Notifications,
- ▶ Management systems, and
- ▶ Administrative.

Further information regarding each of these components is outlined below and relevant sections of the OGPFR are cited as examples from the current regulatory framework.



i. Application Requirements

At the application stage, an applicant would be required to provide engineering information on the proposed manufacturing facility using preliminary information about the project (e.g., pre-Front End Engineering design or pre-FEED). Requiring preliminary information about the project recognizes engineering design is an iterative process and allows for early feedback from the BCER on this design. Throughout the life cycle of the facility, the permit holder would be required to provide updated information to proceed with construction, pre-operation testing, commissioning and operation. This approach will remove the need for the permit holder to make an application to amend the permit as design or other changes occur during the engineering or construction phases of a project, except where a major departure from original plans occurs.

The applicant would be required to demonstrate they have applied applicable codes, standards and guidelines to the design. Also, the applicant would need to demonstrate hazard identification and risk assessment methods have been applied to the engineering design.

Application submissions must contain adequate information, submitted at the relevant time in the project life cycle, to support decision-making that considers impacts and mitigations for public safety, the environment and to support reconciliation.

ERAA sets minimum requirements for the content of an application and provides the BCER's authority to further determine the form and manner of the application. The OGPFR sets out specific application requirements regarding:

- Hazards and impacts: Sections 3 and 4,
- Design mitigations: Sections 3 and 4, and
- Project schedule: Section 3(1) b.

Other requirements and clarifications for a facility application are set out in the Oil and Gas Activity Application Manual.

All submissions made to the BCER that include work relating to the practice of professional engineering or professional geoscience are expected to accord with the Professional Governance Act, [SBC 2018], c. 47, and the Bylaws of Engineers and Geoscientists British Columbia (EGBC). Where applicable, evaluations should be conducted by a qualified professional or a registrant of another profession regulated under the Professional Governance Act (such as professional agrologists or professional biologists).

ii. Engineering Design and Siting

Set transparent expectations and incorporate flexibility through prescriptive requirements and outcomes-based requirements for siting and design.

For example, the OGPFR sets out requirements related to the siting and design of a facility to mitigate hazards and impacts in accordance with applicable codes and standards:

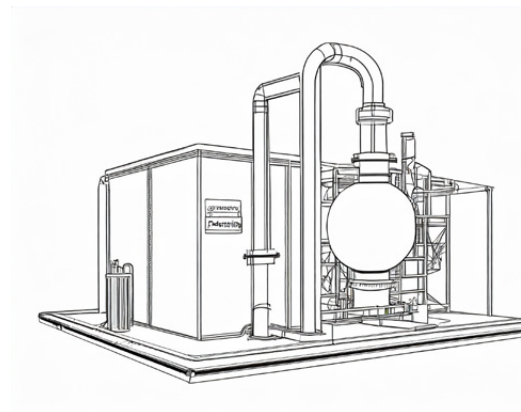
- To mitigate hazards and impacts: Sections 3 and 4,
- Require design to be consistent with information included in application: Section 7,
- Specify requirements for higher risk items like storage, vent stacks, flares and for critical safety measures and incorporate general provision for safe equipment design: Sections 7 and 8,
- Ensure any indoor process areas have measures in place to prevent, detect, monitor and respond to ignition and hazardous atmospheres (explosive, ignitable, flammable, toxic and noxious): Section 11,
- Flaring (if applicable): Requirement to minimize flared quantities; require flaring at a safe location; minimize impacts (e.g., visible emissions, odour, harm to wildlife or vegetation): Section 21,
- Venting: Requirement to prevent venting of significant quantities of flammable gas; require venting to safe location; require venting be minimized; minimize impacts (e.g., visible emissions, odour, harm to wildlife or vegetation): Section 21, and
- Fugitives: Minimize fugitive emissions by encouraging the selection of equipment that will minimize emissions.
 - Consideration for future requirements to address emissions with a global warming potential.
 - Require a leak detection and repair program: Section 22.

iii. Codes and Standards

The proposed regulatory policies will require the applicant to identify specific codes and standards to be used for the design, construction and operation of the manufacturing facility. Adopted standards must be established by international standards-setting bodies. Recognized standards-setting bodies include the International Organization for Standardization (ISO), the National Fire Protection Association (NFPA), Canadian Standards Association Group (CSA), Bureau de normalisation du Québec (BNQ), American Society of Mechanical Engineers (ASME) and the American Petroleum Institute (API).

- General approach for codes and standards:
 - ▶ Adopt in regulation in part or whole,
 - ▶ Require the identification of applicable codes or standards, and
 - ▶ Strive for alignment of standards where facility is co-located with another jurisdiction having authority.
- Examples of applicable codes and standards:
 - ▶ API Standard 520, Sizing, Selection and Installation of Pressure-relieving Devices
 - ▶ API Standard 521, Pressure-relieving and Depressuring Systems
 - ▶ API Standard 526, Flanged Steel Pressure-relief Valves
 - ▶ API Standard 527, Seat Tightness of Pressure Relief Valves
 - ▶ API Standard 537, Flare Details for Petroleum, Petrochemical and Natural Gas Industries

- ▶ API Standard 570, Piping Inspection Code: In-service Inspection, Rating, Repair and Alteration of Piping Systems
- ▶ API Standard 2000, Venting Atmospheric and Low-pressure Storage Tanks
- ▶ API Standard 2510, Design and Construction of LPG Installations
- ▶ ASME B31.3, Process Piping
- ▶ CSA B149.1, Natural gas and propane installation code
- ▶ CSA Z767, Process safety management, except clause 7.4
- ▶ NFPA 2, Hydrogen Technologies Code
- ▶ ISO 22734, Hydrogen generators using water electrolysis process – Industrial, commercial, and residential application
- ▶ BNQ 1748, Canadian Hydrogen Installation Code



iv. Construction, Pre-Startup, Operations and Facility End-of-Life

Submission of additional project details and updated information throughout the project's life cycle allows the BCER to assess plans and processes to address issues, verify recommendations from the safety and environmental studies have been implemented and to verify the facility has been built to the appropriate standards. If a permit is issued, the permit holder will be required to provide the BCER with detailed project information before construction begins.

Construction: The permit holder will be responsible for Quality Assurance and Quality Control (QA/QC) of the project. The BCER would verify construction is built in accordance with the design, appropriate standards and the QA/QC plans. For construction in B.C., this is typically assessed through inspections and audits. Where a manufacturing facility or certain modules of the facility are constructed outside of B.C., the BCER may require alternative means to verify modular units were built to the appropriate standard. Construction oversight typically focuses on safety critical systems and customized items and may be more comprehensive when the permit holder and/or its agents have not demonstrated a history of expertise within the industry. For example, the OGPFR sets out requirements for construction outside of B.C.:

- Quality Assurance Program for construction: Section 4(4)(c) and Section 6
- For construction completed outside of B.C., reports from a qualified individual verifying recognized and generally accepted good practices were followed for construction and testing: Section 12.

Pre-Startup: Prior to commissioning a new manufacturing facility, a permit holder will be required to conduct pre-operational testing. Notice to the BCER will be required before testing is conducted. For example, the OGPFR sets out requirements prior to operations:

- Prior to operation, inspection and testing of equipment is required. Tests must meet safety criteria. The BCER may choose to witness tests, so notification is required: Section 14.

Operations: Prior to commencing operations of a manufacturing facility, a permit holder will be required to have in place key operational aspects. For example, the OGPFR sets out requirements for operations:

- Requirements for key operational aspects are prescribed to ensure safe operation (e.g., require a control room, good housekeeping, safety critical devices, a process safety management system): Sections 18 and 19.

Facility end-of-life: The manufacturing regulation will establish timelines that trigger suspension and decommissioning of a facility. For example, the OGPFR sets out triggers for end-of-life:

- Require the safe suspension of a facility and establish timeline: Section 23



v. General Provisions

This section covers general provisions for a manufacturing regulation that set out minimum expectations for all facility types associated with these new energy activities.

Standard Clauses: There are certain standard clauses applicable for all facility types including manufacturing and processing facilities. For example, the OGPFR sets out the following standard clauses:

- Requirement for the design to be consistent with information included in the application: Section 7,
- Requirement for construction to be in accordance with codes and standards and engineering design: Section 9(2),
- Requirement for operations to be in accordance with design, codes and standards, management system: Section 18,
- Requirement to manage noise and light emissions and to limit impacts on people during construction and operations: Sections 9(3) and 18(4),
- Requirement for signage promoting public awareness of hazards, including contact information in case of concerns: Sections 15 and 18(3), and
- Exemption provision to allow for unforeseen circumstances: Section 32.

Management system: An applicant for a manufacturing facility must ensure a management system is developed, implemented and maintained. The management system must apply throughout the life cycle of the facility, including design, procurement, construction, operation, maintenance, suspension and decommissioning activities. The management system must be designed to anticipate, manage and mitigate the effects of all potential hazards and impacts throughout the life cycle of the manufacturing facility. For example, the OGPFR sets out requirements such as:

- Design, implement and maintain management systems and programs to anticipate, prevent, mitigate and manage the risks associated with design, construction, testing, operations, suspension and end of life of facilities: Sections 6 and 31,
- Address process safety risk and conform to CSA Z767, Process Safety Management: Section 6,
- Address environmental impacts through environmental management programs: Section 6, and
- May require other programs to address risks or impacts associated with studies included in a facility application: Section 6.

The Emergency Management and Security Management regulations also set out requirements for management systems that may be applicable to a manufacturing facility.

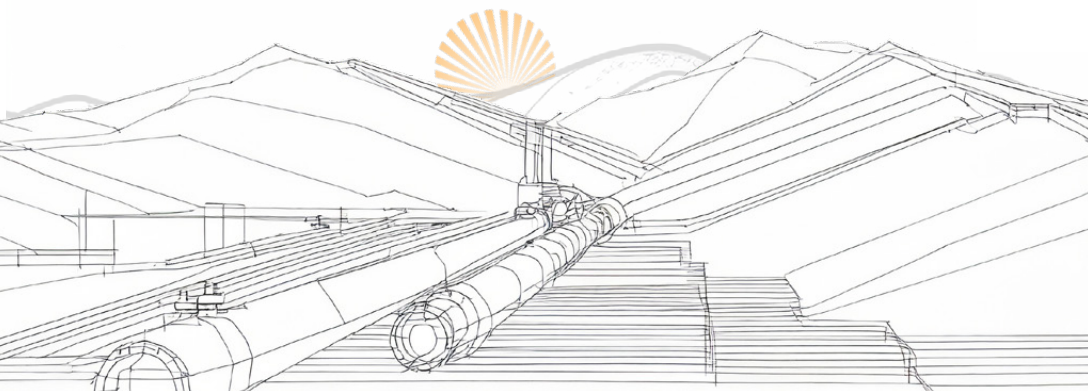
Notifications: Communications between the BCER, the applicant, permit holder, First Nations and land owners occur throughout the entire life cycle of an activity. Key regulatory milestones may trigger notification requirements. For example, the OGPFR notification requirements include:

- Design and construction: Section 10,
- Construction start: Section 9(1),
- Start of operation: Section 16,
- Equipment changes: Section 20,
- Planned shutdowns: Section 20,
- Venting and/or flaring: Section 21, and
- Suspension and decommissioning: Sections 23 & 24.

Other notification requirements are established in manuals and guidelines and under regulations such as Emergency Management, Dormancy and Shutdown and Requirements for Consultation and Notification.

Administrative: Ensure adequate information is in place to enable transparency, support compliance verification and promote resource conservation through specific monitoring, reporting and record requirements as outlined in the manufacturing regulation and permit. For example, the OGPFR sets out requirements for records and measurement:

- Safety critical devices: Ensure accurate and complete lists of most important safeguards to assist with future compliance verification: Section 16(2),
- Record drawings: Ensure sufficient facility information is submitted to the BCER: Section 17,
- Integrity management: Ensure adequate records of equipment for integrity management purposes: Section 25, 26, 28, 29 and 30, and
- Maintain or submit records of feed, products, and waste quantities to support material balances, verify waste product quantities and future reporting needs, if identified: Section 27, 29 and 30.



B. Electrolysis Manufacturing Facilities

This section sets out initial considerations for a facility manufacturing hydrogen by electrolysis of water as well as questions for consideration.

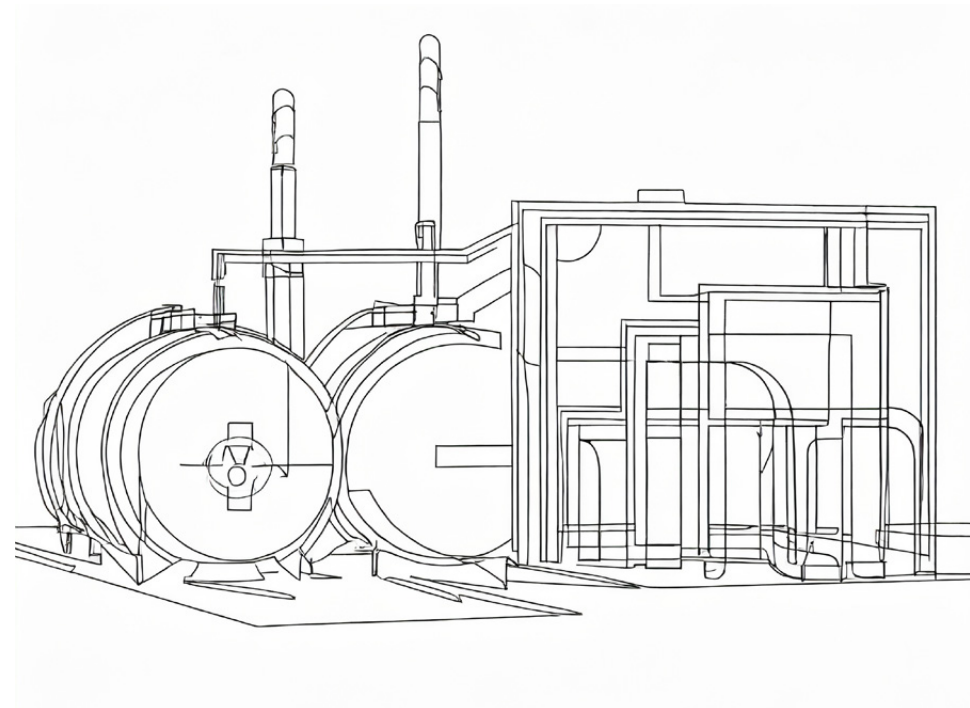
A manufacturing regulation may establish classes of electrolyser facilities based on set criteria or thresholds. Criteria for establishing classes may include:

- Defining a quantitative threshold for throughput and/or storage capacity,
- Setting out how thresholds will be calculated, or
- Prescribing uses of electrolysers.

Regulatory oversight of the different classes may include alternative regulatory pathways based on the associated scale and risks. Alternative pathways may include:

- Certification in accordance with an international or national accredited standard,
- Reporting by qualified professionals verifying recognized and generally accepted good engineering practices have been followed, and
- Alignment with other regulatory agencies or municipalities where equivalent regulatory oversight authorities exist.

The following table includes several classes of hydrogen manufacturing facility, each of which may require distinct regulatory obligations. Below the table is a series of questions for consideration and we request your responses specify which facility class is being referenced.



Class	Size	Description of Class
Residential	<10kg/day capacity (~20kW) And <10kg storage	<ul style="list-style-type: none"> For indoor and outdoor use of electrolyzers in private households (non-research, non-retail, non-commercial and non-industrial use) in sheltered areas, such as carports, garages, utility rooms and similar areas of a residence. Establish a threshold where the manufacturing regulation will not apply: <ul style="list-style-type: none"> Small amount of stored hydrogen (e.g., <10 kg, or ~16 hydrogen cylinders) Personal scale
Research	<125kg/day capacity (~250kW)	For researching the capabilities of a technology, system or process associated with hydrogen as an energy resource activity.
Refuelling and Integrated	<125kg/day capacity (~250kW)	<p>Hydrogen is produced, handled and stored for:</p> <ul style="list-style-type: none"> On-site use in hydrogen generators in business facilities such as stores, hotels, office buildings, educational institutes, hospitals, filling stations, warehouses and other non-residential locations. Supply to a facility for the dispensing of compressed hydrogen vehicle fuel (dispensing of fuel is not regulated by the BCER).
Commercial and Industrial	Small: <125kg/day capacity (~250kW)	<p>Electrolyser where hydrogen is produced, handled and stored as part of a commercial or industrial activity:</p> <ul style="list-style-type: none"> Small facilities may include electrolyser facilities manufacturing hydrogen to support an industrial client in reducing the carbon intensity of their operations or to supply an offsite commercial refuelling station. Medium facilities may include electrolyser facilities that support hydrogen blending into natural gas systems. Large facilities may include batteries supporting ammonia or methanol manufacturing facilities.
	Medium: Up to 2.5 tonnes/day capacity (<5MW)	
	Large: More than 2.5 tonnes/day capacity (>5MW)	

Questions for Consideration

- What are the risks associated with different sizes of hydrogen electrolysis facilities? How do the risks differ between the classes of uses considered in the table?
- What threshold and criteria should trigger application of the following requirements in the manufacturing facility regulation, and why?
 - Engineering/technical requirements (see Section A)
 - Environmental stewardship requirements (see Section C)
 - Requirements supporting social well-being and reconciliation (see Section C)
- What threshold or criteria should trigger alternative approaches for regulatory oversight, and why?
- Based on your current understanding, what areas of overlap or complementary regulatory and permitting processes exist across jurisdictions and where is streamlining recommended?
- How should fit for purpose regulatory provisions be designed to provide oversight for:
 - Land owner and rights holders consultation and notification in urban areas?
 - Security management for small facilities within urban areas?
 - Emergency management to recognize the role of municipal responders?
 - Compliance and enforcement including aspects such as transparency, investigations and reporting?

C. Environment, Social Well-being and Reconciliation

This section sets out initial considerations for environmental stewardship and requirements to support social well-being and reconciliation, including:

- i. Pre-engagement,
- ii. Environmental stewardship,
- iii. Social and cultural affects, and
- iv. Indigenous Knowledge.



i. Pre-engagement

The BCER fulfills the Crown's obligation to consult with First Nations prior to the authorization of activities under ERAA and related specified enactments for which the BCER is the responsible decision maker. Consultation refers to the legal obligations of the Crown (Government) when Aboriginal interests (rights and title) may be adversely affected by a Crown decision. Consultation consists of information sharing between government and affected First Nations and seeks to resolve potential adverse impacts to Aboriginal interests. While the duty to consult and accommodate, when triggered, rests with the BCER, proponents can assist the BCER in meeting this obligation by considering ways to address concerns by avoiding or mitigating impacts to Aboriginal and treaty rights. BCER will continue to adapt processes and programs to ensure they are aligned with the Province's reconciliation guidance.

The objective of pre-engagement is to have proponents and First Nations proactively discuss or share information on a potential project, identify potential impacts to Aboriginal and treaty rights and develop avoidance and mitigation measures that reflect the view and input of First Nations. Proponents can use the Province's tool for guidance ([Welcome to PIP: Consultation Areas \(gov.bc.ca\)](https://www2.gov.bc.ca/gov/content/industry/energy/pip/welcome-to-pip-consultation-areas)) to identify First Nations with which they should engage.

A project proponent must include sufficient detail in an application for the review staff and decision maker to understand how pre-engagement was planned and executed and how the outputs of engagement were used to (1) address concerns/objections and (2) if Indigenous Knowledge was provided and used in the assessment of environmental, social and cultural effects. Current requirements for pre-engagement include:

- Under the OGPFR, Sections 4(4)(b) and 5, and
- BCER's [Pre-Engagement Requirements](#).

When making a decision on a manufacturing facility, the BCER will rely, to the degree it is able, on relevant engagement and consultation undertaken as part of the environmental assessment or other processes by the applicant, or by other provincial or federal agencies.

ii. Environmental Stewardship

The BCER's existing environmental oversight framework is multi-faceted and results-based.

- ERAA sets out minimum requirements related to environmental obligations when carrying out energy resource activities, such as minimizing damage and disturbance to activity sites, minimizing waste and requiring restoration. Clear expectations are also outlined for preventing spillage as well as reporting, responding and remediating affected areas.
- ERAA also establishes requirements to comply with environmental measures established under the authority of other applicable regulations. For example, the [Environmental Protection and Management Regulation](#) (EPMR) provides authority for environmental protections related to activities on Crown lands. The BCER's approach to decisions regarding management of risk to the environment is to require applicants to demonstrate they have identified all environmental impacts or potential impacts of a proposed energy activity and the proposed energy activity will have no material adverse effect to the Government's environmental objectives. These objectives relate to water, riparian areas, wildlife and wildlife habitat, old growth management areas, soils, resource features and cultural heritage resources, among others.
- Additional authorities and requirements established within ERAA, or under Specified Enactments, also establish the minimum legal requirements for environmental protection and management. BCER is also actively working with First Nations, the Provincial Government and stakeholders to develop and implement a cumulative effects tool.

A project proponent must include sufficient detail in an application for the review staff and decision maker to understand the potential environmental impacts of the project. Assessment of the presence or absence of potential environmental impacts throughout the project life cycle are necessary, with particular emphasis on impacts such as:

- Air quality,
- Ground water (quality, quantity),
- Surface water (quality, quantity, water timing, natural drainage),
- Riparian areas,
- Wildlife and wildlife habitat,
- Cultural heritage resources,
- Acoustic emissions,
- Light emissions,
- Venting and flaring, and
- Site management after construction.

Environmental submissions must be completed by a Qualified Professional working within their scope of practice, unless otherwise specified. Applicants must ensure Qualified Professionals identify how specific energy activities will avoid, minimize or mitigate impacts to the environment.



As part of the management system required for a manufacturing facility, environmental management programs (EMPs) may be required to reduce risks of potential environmental impacts over the life cycle of the facility. The EMPs shall detail the processes and procedures to minimize the risk of adverse effects the manufacturing facility could have on the environment over its life cycle and are to be used in combination with site-specific Environmental Protection Plans. To ensure the management of invasive plants, proponents will be required to maintain a record that demonstrates how invasive plants are assessed for, monitored and prevented from establishment.

For example, under the OGPFR framework, permit holders are required to safeguard environmental values during the planning, construction, operations and decommissioning of activities:

- Assessment of Environmental Effects: OGPFR 4(1)(c), 5(2)(c)(ii),
- EMPs: OGPFR 6(2)(b)(ii),
- Invasive Plant Management: OGPFR Section 27.1 and EPMR Section 15, and
- Government Environmental Objectives: EPMR sections 4,5,6,7 for Crown land.

From the initial application phase onwards, permit holders will be required to plan for and complete end-of-life decommissioning and site restoration after the permanent cessation of operations at a manufacturing facility. Restoration and remediation activities will be guided by permit conditions, land owner agreements and laws, including the EPMR and the [Contaminated Sites Regulation](#) as appropriate.



iii. Social and Cultural Effects

Social and cultural effects comprise a project's impacts on people and on the ways in which people and communities interact with their social, cultural and biophysical surroundings. These types of effects can be directly attributable to a project or can arise indirectly from a project's activities; they can also be driven by project-related changes in the natural or biophysical environment.

The construction and operation of a manufacturing facility may have social and cultural effects on Indigenous communities, land owners and other communities in the area. Section 4 of ERAA mandates the BCER regulate energy resource activities in a manner that fosters social well-being. Further, the BCER has a legal duty to consult and, if required, accommodate any potential adverse impacts to claimed or proven Aboriginal interests, including Aboriginal title and treaty rights, as recognized and affirmed by Section 35(1) of the Constitution Act, 1982.

Under a manufacturing regulation, permit holders will be required to assess, avoid, minimize or mitigate and safeguard social and cultural effects during the planning, construction, operations and decommissioning of activities. A project proponent must include sufficient detail in an application for the review staff and decision maker to understand the social and cultural effects of the project. While an all-encompassing list of these effects is not reasonable, some specific social or cultural effects that may be associated with a manufacturing facility could include, but are not limited to:

- Loss of an area or access to an area with specific cultural or recreational value through conversion to a facility site,
- Increased hunting or fishing pressure caused by new access leading to reduced wildlife populations,
- Noise, light, vibration or odours that affect adjacent lands valued by people,
- Alteration (e.g., avoidance, displacement) of Indigenous harvesting activities, such as hunting, fishing, gathering and trapping or changes in availability and utility of preferred harvested species and occupation sites,
- Alteration/removal of/increased access to archaeological or cultural heritage sites, sacred sites, trails and culturally or spiritually important sites and culturally modified trees,
- Increased traffic that significantly affects other road users or nearby people, and
- Visual impacts likely to appreciably alter the character of the visual landscape as seen from viewpoints.

As part of the management system required for a manufacturing facility, specific management programs in relation to social and cultural effects over the life of the project may be required. Where a project is deemed reviewable under the [Canadian Environmental Assessment Act, 2012](#) or the [BC Environmental Assessment Act](#), requirements related to environmental and socio-cultural assessments will be replaced by those required under the applicable assessment process.

iv. Indigenous Knowledge

Each Indigenous group will define Indigenous Knowledge for themselves and how it is to be applied when working with external groups, such as industrial proponents and government agencies. These expectations are likely to evolve as the Province works toward reconciliation with Indigenous People to ensure a modern interpretation for the respect of existing agreements and treaties.

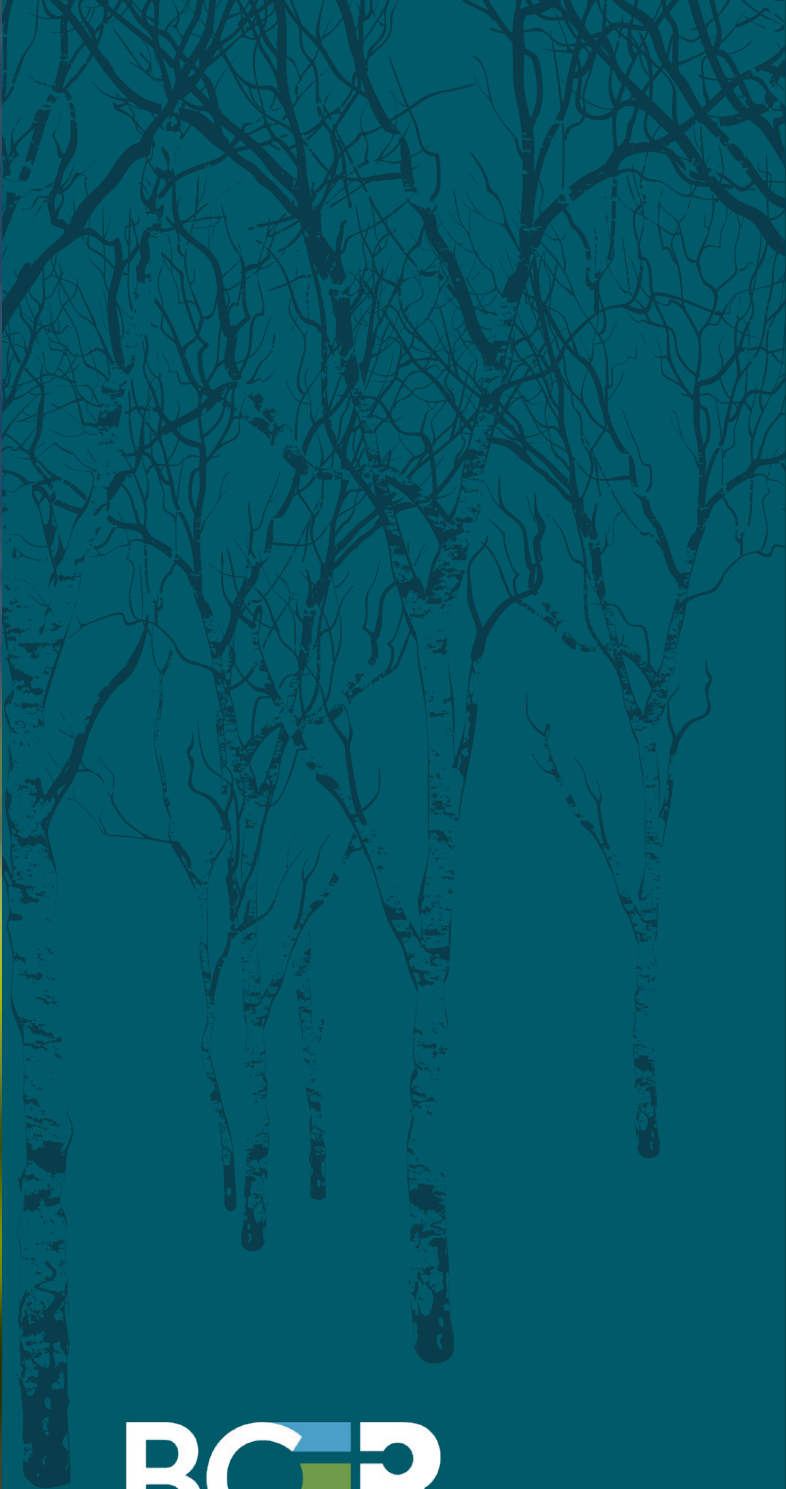
Proponents' pre-engagement with First Nations will guide how Indigenous Knowledge is potentially made available and the appropriate way to apply available Indigenous Knowledge to a specific project.

- Consider and incorporate Indigenous Knowledge in the assessment of environmental effects and socio-cultural assessments, where Indigenous Knowledge is made available.
- If a First Nation does not agree to share Indigenous Knowledge or such knowledge is not available after reasonable efforts to work with local communities, the proponent is not required to incorporate that First Nation's Indigenous Knowledge.
- Document the efforts working with First Nations to obtain and incorporate their Indigenous Knowledge.



Your feedback is requested by **June 30, 2024**.

Questions, comments and written submissions can be directed to regulatoryaffairs@bc-er.ca.



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